

**Patent claims**

1. A process for the sequential production of a library of N different solids, in particular heterogeneous catalysts, where N within a day is an integer of at least 2, by
  - a) producing at least two different sprayable solutions, emulsions and/or dispersions of elements and/or element compounds of the chemical elements present in the catalyst and optionally of dispersions of inorganic support materials,
  - b) continuously metering the at least two different solutions, emulsions and/or dispersions in a predefined ratio into a mixing apparatus in which the solutions, emulsions and/or dispersions are homogeneously mixed,
  - c) continuously drying the mixture removed from the mixing apparatus and recovering the dried mixture,
  - d) changing the ratios in step b) and repeating steps b), c) and d) (N-1) times until N different dried mixtures are obtained,
  - e) optionally shaping and optionally calcining the mixtures to give the solids.
2. A process as claimed in claim 1, wherein the ratio in steps b) and d) is set and changed by changing or adapting the flow velocities of the different solutions, emulsions and/or dispersions during the metering into the mixing apparatus.
3. A process as claimed in claim 2, wherein the total stream of the individual solutions, emulsions and/or dispersions remains constant during the metering in the mixing apparatus and to the drying.
4. A process as claimed in one of claims 1 to 3, wherein the time period between mixing the solutions, emulsions and/or dispersions and drying is less than 10 minutes.
5. A process as claimed in one of claims 1 to 4, wherein the drying is

performed by spray drying or spray-freeze drying.

6. A process as claimed in one of claims 1 to 5, wherein the different solids are produced in each case in amounts of from 0.1 to 500 g.
- 5 7. A process as claimed in one of claims 1 to 6, wherein the ratio in step b) is set and changed by central computer control of the output of pumps which in each case separately transport the different solutions, emulsions and/or dispersions into the mixing apparatus.
- 10 8. An apparatus for the sequential production of a library of N different solids, where N is an integer of at least 2, comprising a number of at least 2 reservoir vessels for receiving solutions, emulsions or dispersions of elements and/or element compounds of the chemical elements present in  
15 the catalyst and optionally dispersions of inorganic support materials,  
  
a mixing apparatus for mixing the solutions, emulsions and/or dispersions,  
  
pumps and pipe connections for the individually independent connection of  
20 the reservoir vessels to the mixing apparatus,  
  
an apparatus for drying the mixture passed out of the mixing apparatus, which drying apparatus is connected to the mixing apparatus via a pipe, and  
  
25 a central computer which controls the output of the pumps.
9. An apparatus as claimed in claim 8, wherein the drying apparatus is a spray dryer or spray-freeze dryer.
- 30 10. A process for the parallel testing of the libraries of solids obtained by a process as claimed in one of claims 1 to 7 for a desired catalytic property, comprising the separate introduction of the individual solids into multiple reactors and subsequent carrying out of the steps required for the testing for a desired catalytic property.